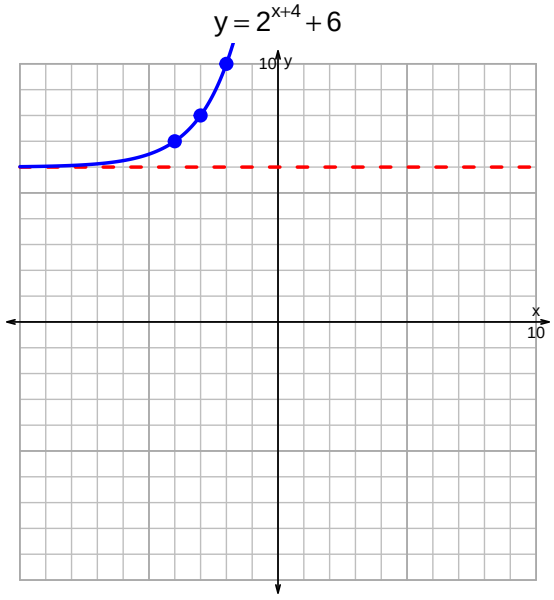
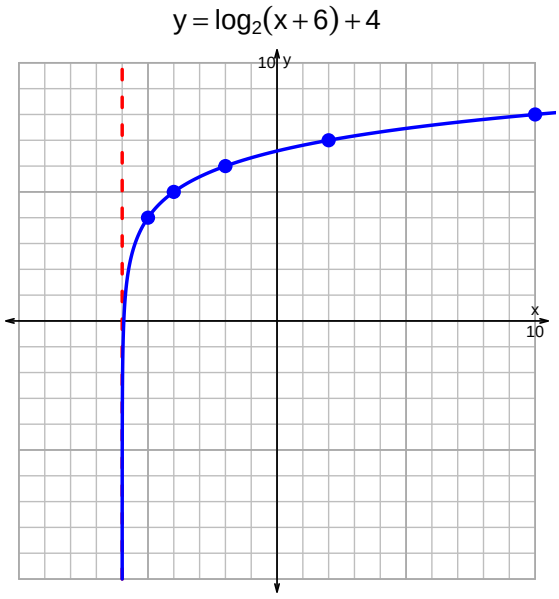
Name: Date:

S18QUIZ: EXP LOG (SLTN v274)

1. Graph $y = 2^{x+4} + 6$ and $y = \log_2(x + 6) + 4$ on the grids below. Also, draw any asymptotes with dotted lines.





2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-23 = \left(\frac{-4}{3}\right) \cdot 2^{7t/5}$$

Divide both sides by $\frac{-4}{3}$.

$$\frac{23 \cdot 3}{4} = 2^{7t/5}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{23 \cdot 3}{4}\right) = \frac{7t}{5}$$

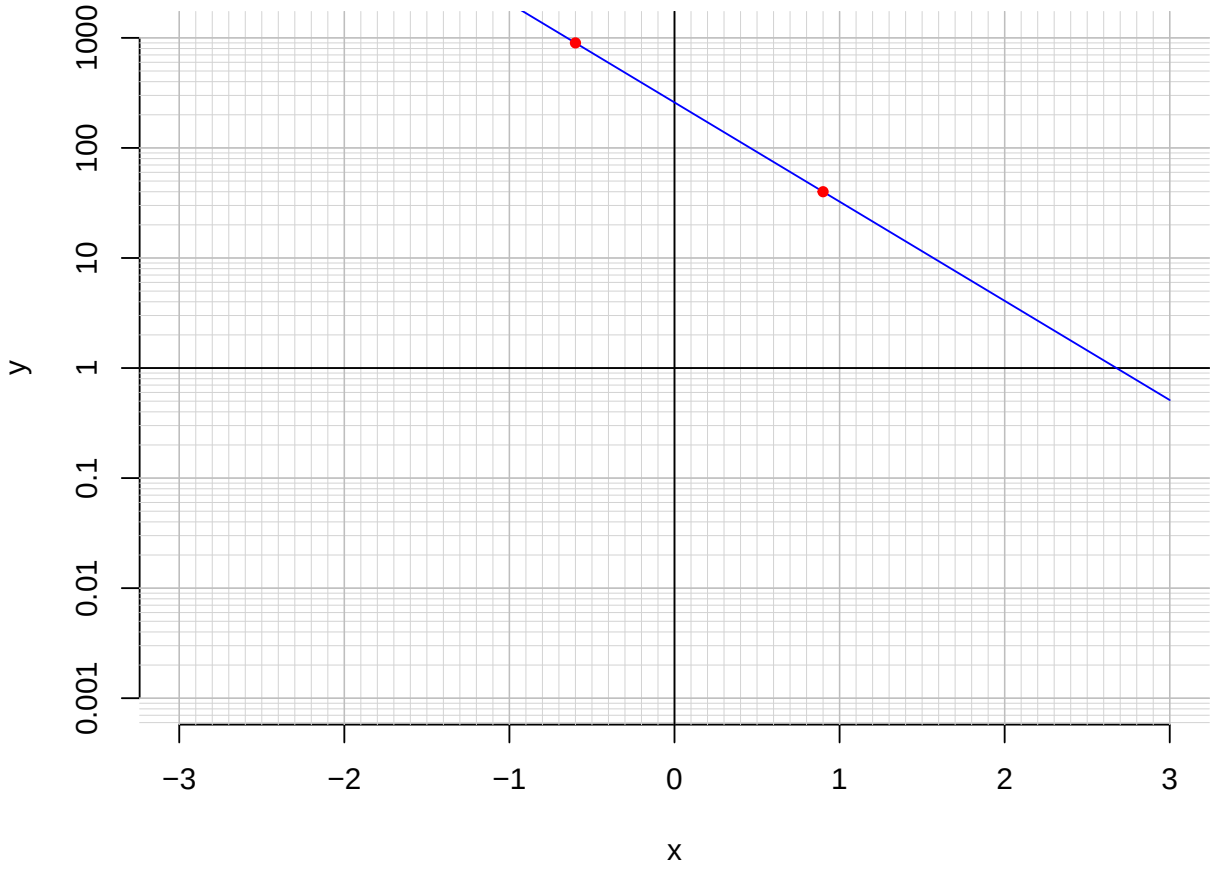
Divide both sides by $\frac{7}{5}$.

$$\frac{5}{7} \cdot \log_2\left(\frac{23 \cdot 3}{4}\right) = t$$

Switch sides.

$$t = \frac{5}{7} \cdot \log_2\left(\frac{23 \cdot 3}{4}\right)$$

3. An exponential function $f(x) = 259 \cdot e^{-2.08x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(0.9)$.

$$f(0.9) = 40$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{2.08} \cdot \ln\left(\frac{x}{259}\right)$$

c. Using the plot above, evaluate $f^{-1}(900)$.

$$f^{-1}(900) = -0.6$$